Exam: Function Reflections (Practice version 48)

1. Let function f be defined by the polynomial below:

$$f(x) \;=\; -3x^4 - 4x^3 + 2x^2 + 7x - 8$$

Draw lines that match each function reflection with its polynomial:

Reflections	Polynomials

$f(-x)$ ●

$-f(x)$ ●

$-f(-x)$ ●

● $3x^4 - 4x^3 - 2x^2 + 7x + 8$
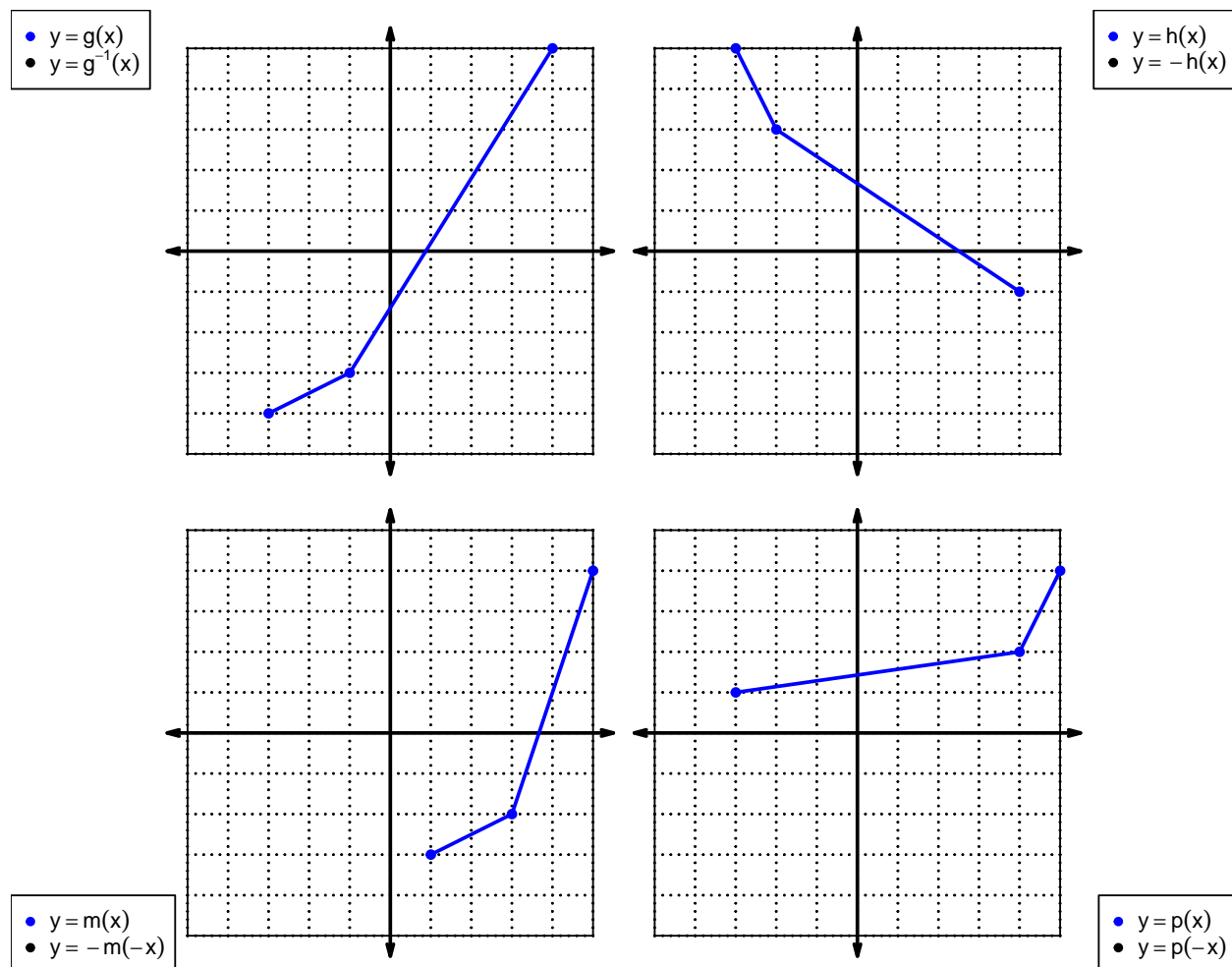
● $3x^4 + 4x^3 - 2x^2 - 7x + 8$

● $-3x^4 + 4x^3 + 2x^2 - 7x - 8$

2. In each xy plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The x axis is horizontal and the y axis is vertical (as typical), and the scale is equal on both axes.

- $y = g(x)$
- $y = g^{-1}(x)$

- $y = h(x)$
- $y = -h(x)$

- $y = m(x)$
- $y = -m(-x)$

- $y = p(x)$
- $y = p(-x)$

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For all questions on this page, the functions f, g, and h are defined by the table below.

x	$f(x)$	$g(x)$	$h(x)$
1	9	5	7
2	1	8	5
3	8	1	3
4	3	4	2
5	4	3	9
6	7	2	8
7	2	9	4
8	5	7	1
9	6	6	6

3. Evaluate $g(1)$.

4. Evaluate $f^{-1}(2)$.

5. Assuming h is an **odd** function, evaluate $h(-4)$.

6. Assuming g is an **even** function, evaluate $g(-9)$.

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7. A function, f, is **even** if $f(x) = f(-x)$ for all x in the domain. A function, g, is **odd** if $g(x) = -g(-x)$ for all x in the domain.

Let polynomial p be defined with the following equation:

$$p(x) = -x^3 + 1$$
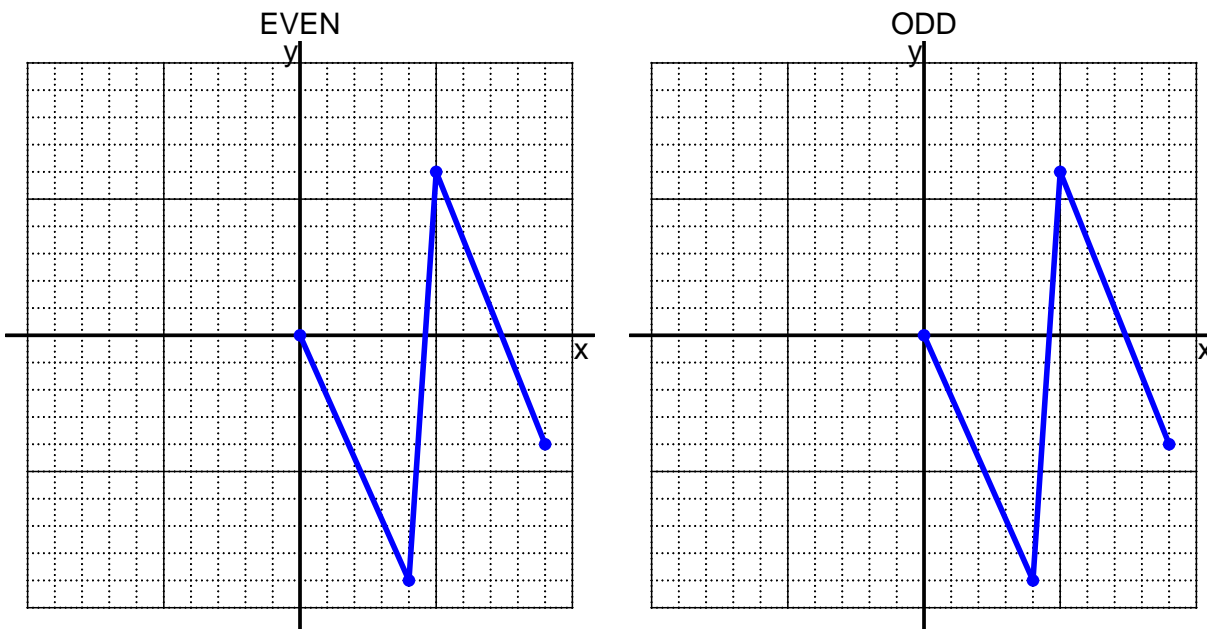
a. Express $p(-x)$ as a polynomial in standard form.

b. Express $-p(-x)$ as a polynomial in standard form.

c. Is polynomial p even, odd, or neither?

d. Explain how you know the answer to part c.

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8. I have drawn half of a function. Draw the other half to make it even or odd.

EVEN

ODD

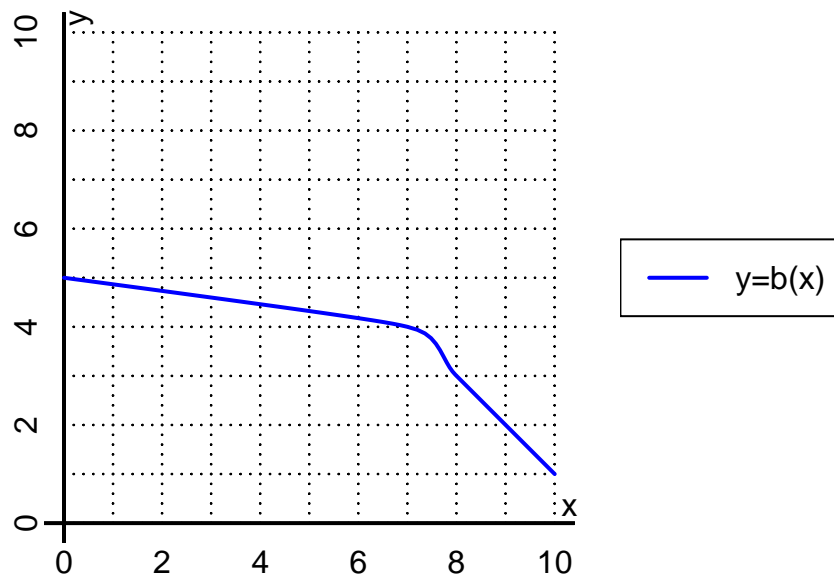9. Let function f be defined with the equation below.

$$f(x) = \frac{x}{3} - 7$$

    a. Evaluate $f(57)$.

    b. Evaluate $f^{-1}(6)$.

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10. The function b is represented by the curve $y = b(x)$ graphed below.

a. Evaluate $b(7)$.

b. Evaluate $b^{-1}(3)$.

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11. Function f is defined by the table below.

   a. Complete the columns for $-f(x)$ and $f(-x)$ and $-f(-x)$.

x	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	9			
-1	-6			
0	0			
1	6			
2	-9			

b. Is function f even, odd, or neither?

c. How do you know the answer to part b?